

## CLAIMS

1/ A method of acquiring data in a hydrocarbon well (12), the method being characterized in that it consists in determining both the local speed of a multiphase fluid flowing in the well and the local proportions of the phases of said fluid in each of at least two distinct regions of the well that are offset from each other parallel to the axis of the well.

2/ A method according to claim 1, in which said regions are all situated in the same plane containing the axis of the well, or in the vicinity of said plane.

3/ A method according to claim 2, in which said regions are distributed across the entire width of the well (12).

4/ A method according to claim 2 or 3, in which said plane is oriented in a substantially vertical direction when the well (12) is inclined or horizontal.

5/ A method according to claims 3 and 4 combined, in which one of said regions is situated in the vicinity of a top generator line of the well (12).

6/ A method according to any preceding claim, in which a section element ( $\Delta s_i$ ) of the well is assigned to each of said regions, and the overall flow rate  $Q$  of each of said phases is determined from the relationship:

$$Q = \sum_i q_i \cdot \frac{\Delta s_i}{S}$$

where  $S$  is the total vertical section of the well and  $q_i$  is the flow rate of said phase in section element  $\Delta s_i$ ,  
with  $q_i = v_i \cdot h_i$

202210/25072001

where  $v_i$  is the local speed of said phase in section  
element  $\Delta s_i$   
and  $h_i$  is the local proportion of said phase in section  
element  $\Delta s_i$ .

5

7/ Apparatus (10) for acquiring data in a hydrocarbon well (12), the apparatus being characterized in that it comprises, in each of at least two distinct regions of the well that are offset from each other parallel to the axis of the well, means (26) for determining the local speed of a multiphase fluid flowing in the well and means (28) for determining the local proportions of the phases of said fluid.

15 8/ An apparatus according to claim 7, in which said regions are all situated in the same plane containing the axis of the well (12).

9/ An apparatus according to claim 8, in which said  
20 regions are distributed across the entire width of the  
well (12).

10/ An apparatus according to claim 8 or 9, in which means are provided to orient said plane in a substantially vertical direction when the well (12) is inclined or horizontal.

11/ An apparatus according to claims 8 and 9 combined, in which one of said regions is situated in the vicinity of a top generator line of the well (12).

12/ An apparatus according to claim 10 or 11, comprising a body (14) capable of resting, by gravity, against a bottom generator line of the well (12), and at least one  
35 deployable arm (18, 20) supported by the body (14) at one end and capable of being applied against the top generator line of the well, in which at least some of the

means (26) for determining the local speed of the fluid and at least some of the means (28) for determining the local proportions of the phases are supported by the deployable arm (18, 20).

5

13/ An apparatus according to claim 10 or 11, comprising a body (14) capable of being centered about the axis of the well by centering means including at least two deployable arms (18', 20') supported by the body (14) and capable of being applied respectively against the bottom generator line and against the top generator line of the well, in which at least some of the means (26) for determining the local speed of the fluid and at least some of the means (28) for determining the local proportions of the phases are supported by the deployable arms (18', 20').

14/ An apparatus according to any one of claims 7 to 13, in which multi-sensor assemblies (24) are provided, each including the means (26) for determining the local speed of the fluid and the means (28) for determining the local proportions of the phases.

15/ An apparatus according to any one of claims 7 to 13, in which, in each of said regions, the means (26) for determining the local speed of the fluid and the means (28) for determining the local proportions of the phases are mounted in distinct locations that are substantially in alignment with each other on a line parallel to the axis of the well.

Add  
A1

Add  
B1

202210 012202